

A range of common-sense design principles - a subset of the design principles in Chapters 5 and 6 of my book “Designing video and multimedia for open and flexible learning”

Table 1 part (a) deals with considerations prior to your designing the video. Then part (b) , outlines pedagogic design guidelines.

Table 1. A pedagogic framework of narrative screenwriting principles

(a) How will the video be used?

		Examples
By whom	A. TARGET AUDIENCE	Year 5
In what context	B. LEARNING CONTEXT AND COMPLEMENTARY LEARNING	Supplementary video notes
For what purpose	C. TEACHING INTENTIONS <ol style="list-style-type: none"> 1 Cognitive Learning Outcomes 2 Provision of Experiences 3 Nurturing (motivations, feelings) 	<ol style="list-style-type: none"> 1. Apply a scientific theory 2. Take viewers on a virtual field trip 3. Influence attitudes

(b) Pedagogic screenwriting structure

		Examples
Make them want to know	1. HOOK (capture attention and sustain interest)	Shock close-up of moist human brain. Narration: <i>This is a real human brain</i>
Tell them what you will do	2. SIGNPOST (information about what's coming)	Scene: four monkeys eating. Narration: <i>let's concentrate on social behaviour</i>
Do it, pedagogically	3. ENCOURAGE ATTENTIVE VIEWING (CONCENTRATION)	Presenter says: <i>helium in this balloon, carbon dioxide in this one. What will happen when I release the balloons?</i>
	4. ENABLE INDIVIDUAL CONSTRUCTION OF KNOWLEDGE	e.g. don't blanket shots with narration: leave slack for contemplation.
	5. SENSITIZE	e.g. timely occurrence of music
	6. ELUCIDATE	e.g. uncluttered, simplifying graphics
	7. REINFORCE	e.g. repetition from a different angle
Tell them what you have done	8. CONSOLIDATE / CONCLUDE	e.g. summarize key features, helping viewers to stand back from the story

MORE EXAMPLES of the pedagogic structure guidelines of Table 1(b)

1. HOOK

a. Capture Attention: *delight, surprise, shock*

The unexpected, whether negative (shock), neutral (surprise) or positive (delight) will *rouse* the viewer.

For example, the video starts with the shock close-up of a moist human brain, with the narration, *This is a real human brain (PAUSE 4 sec FOR CONTEMPLATION)*.

An example whereby you might surprise the viewer (in a chemistry video): the presenter releases a balloon filled with carbon dioxide, or a heavier gas, and it *drops like a stone*.

An example whereby you might *delight* the viewer, in a programme involving family life, is to show babies doing baby things, such as toddling then overbalancing onto their bottoms.

b. Sustain Interest: *fascinate, entertain/amuse, appetise, create suspense*

Having roused viewers through 1a, above, you have to *sustain* their interest – through bringing out the *fascination* of the topic, and/or *entertaining/amusing* them (humour is powerful), and/or *appetizing* them with a foretaste of interesting later items, and/or *creating suspense* (which stimulates them out of a receptive mode into one of active anticipation).

2. SIGNPOST

a. Chapter Heading

Telling viewers what comes next, as in, *Let's now concentrate on social behaviour*.

b. Focus signpost: *what to look out for*

This directs the learner's attention to particular aspects of the next item. For example, *As you watch the flight of the helicopter, concentrate on what happens when it tilts forward...*

Another example:

In the next clip, concentrate on the arms of the spinning skater

Both of these examples focus visual attention. Alternatively, it is often helpful to focus cognitive attention. For example

Instead of the teacher saying, *Let's work out the formula for the area of a circle*, The teacher says, *The area of a circle is πr^2 - let's see why*.

Thereby, viewers can keep comparing the current situation with the target solution.

3. FACILITATE ATTENTIVE VIEWING (CONCENTRATION)

a. Pose questions

- Most often, *question, pause, answer* (i.e. rhetorical questions).
- Special case: pose implicit visual questions by *partial animation* so that viewers have to imagine the *in-between* pictures.
- Explicit questions, with a visual device that informs viewers when the answer will be revealed. For example, *what are the reflective symmetries of this object?* – repeated as a printed caption – then a rotating clock-hand counts down to 10 seconds.

- For questions requiring lengthy deliberation, viewers can be invited to stop the video and re-start when ready, perhaps after referring to complementary print material.

b. *Encourage prediction*

- Inviting viewers to *guess what is coming next* keeps their minds active. For example, in a video about chemical elements, the teacher, holding two balloons, says, *This balloon contains helium, the other contains carbon dioxide. What's going to happen when I release the balloons, what do you think?* (PAUSES BEFORE RELEASING BALLOONS)
- Also, *implicit questions*, so that viewers will be tempted to predict the answers, such as: *we're going to investigate why, more and more these days, teenage boys lack self-esteem* ... (followed by a pause to encourage prediction)

4. *ENABLE INDIVIDUAL CONSTRUCTION OF KNOWLEDGE*

a. *Concretize/activate existing knowledge*

Use multiple analogies and metaphors in order to anchor into viewers' prior knowledge.

b. *Do not obscure the geography*

When recording in a new location that contains objects of interest, start with an *establishing* shot – a wide shot that establishes the geography.

CAVEAT. The big-close-up is a must for informing and maintaining interest – and sometimes this should not be postponed just in order to start with an establishing shot. On the other hand, close-ups should not be too tight (allow some visual elbow-room).

c. *Don't blinker, disclose the context (the conceptual geography)*

- *old* in same shot with *new* for comparison. For example when one item in a mathematical equation is shown to change, retain the original unchanged equation in the same shot, for comparison. Similarly, show a close-up *from the start* of a chemical change (speeded up if necessary), rather than a 2-shot (presenter + object) and then a close-up later.
- If developing an argument line by line of text (or box by box of a flow-chart), don't always obscure the next line just because the commentary has not yet reached that point – show two lines (or three) from the start and highlight each as the commentary reaches it

5. *SENSITISE (put viewers into a receptive frame of mind)*

a. *Appropriate style of Music – occurring sparingly*

The *style* of background music should be appropriate for the topic and learning task – and so should its *occurrence*: music over a whole video tends to tranquillise rather than sensitise.

Consider doing *without* music during narration and introduce it only when the narration stops for a while, thus inviting viewers to contemplate the scene and make their own interpretation.

b. *Signal Change of Topic*

A new topic can be signalled by a pause at the end of a topic followed by a change of shot and immediate new narration. This immediacy indicates that the topic has changed, then the narration *identifies* the new topic.

c. Consistent style

Maintaining a particular style, such as the colour of captions, facilitates intake of information, because the learners become accustomed (or de-sensitised) to the background information (colour) so can ignore it. Hence they are more sensitive to the *relevant* information.

d. Conform to video grammar

Do not cut from a shot in which the camera is zooming or moving. Movement (especially of the whole picture) requires extra mental processing. Hence the viewer's mind cannot settle down until the movement stops and the picture remains static for a second or so.

6. ELUCIDATE (make the story clear)

- Long sentences, which normally contain conditional clauses, are difficult to understand. So convert every long sentence into two or more short ones.
- Pedagogic graphic design – clear, informative – using flow charts, concept maps, colour coding, shape coding, animation. And NOTE: clarity of text must take priority over beauty – fancy fonts and colours can be less legible
- Speak clearly (even experienced presenters are prone to gabble when being recorded)
- Framing: arrange objects/graphics to match screen ratio – excessive wasted space means wider shots and hence less legible shots.
- Ensure that all performers and props are in the right place, doing the right things, and that conditions are purposely restricted to exclude extraneous noises or intrusive objects or people.
- Direct the learner's attention to the relevant part of the screen or aspect of the picture – with commentary or superimposed graphics or highlighting or a presenter pointing
- To convey three-dimensionality, the best technique is to move the object or camera. Additionally, three-dimensionality can be enhanced by interposing the presenter's hand, sliding over the object. Appropriate key lighting is also necessary – to *sculpture* the object by creating differentiated light and shade and also shadows of protrusions

7. REINFORCE

a. Repetition (from a different angle)

Repetition for reinforcement can be repetition of words or of pictures. In either case, the repetition might be exact or, more usually, repetition of an idea from a different angle.

A second reason for repetition is not to reinforce but rather to compensate for inattention. Viewers' concentration may fade in and out during a video segment. Such lapses will occur at different times for different viewers. Hence, the need for occasional redundancy – repeat the ideas in different words, enlarge upon the idea.

b. Compare/Contrast

When two objects or concepts are compared for similarities between them, each concept is understood better through analogy with the second concept.

A similar effect can be achieved by doing the opposite – contrasting two concepts for their differences. This sharpens appreciation of the concept that is being contrasted, i.e. the viewer understands *what the concept is not*.

c. Synergy between words and pictures

- Choose the shot that best amplifies rather than merely *accompanies* the words. For example, a sequence in a foundry, with the commentary, *Safety is paramount when the heat is so fierce*. In this case, don't show a wide shot of the foundry – rather, show a *close-up* of a *potentially dangerous* activity – a worker pouring white-hot molten metal.
- Conversely, choose words that amplify the shot, e.g.
Do not say *this part of the object*
instead, say *the top left part of the object* or *the pointed part of the object*
- On some occasions, the pictures need to precede the words, e.g. when the pictures are mathematical expressions that are difficult to listen to unless they can be seen: for example, the corresponding formula needs to be seen during the commentary :
minus b, plus or minus the square root of, b-squared minus four ac, all over two a
- On other occasions, the words need to precede the pictures (to prepare the learners):
In the next clip, watch the arms of the spinning skater.

8. CONSOLIDATE/CONCLUDE

a. Recapitulate

For example, following the first half of a video about the brain, the presenter says (over appropriate shots of parts of a model of the brain)

We've looked at four parts of the brain, a part of the brain concerned with language, at the ventricles, at the visual system and at the sensory cortex

b. Summarize key features / consolidate

Summarizing is more extensive than recapitulating – it extends back and elaborates on the chapter by giving a précis of the key features. For example, following the recapitulation quoted above, the presenter summarizes, by saying

and in each case, as well as looking at their structure, we've looked at their function – what the parts of the brain actually do, the behaviour and the abilities and the sensations that they control

c. Chapter Ending

Name the chapter and say that it has finished (usually a single sentence). For example, in a video about the brain, at the end of a section (chapter) describing the natural cavities in the brain (the *ventricles*), the narrator says,

So that's the ventricles, now for the visual system.

The first half of the sentence is the *chapter ending* – it names the chapter (*the ventricles*) and announces that it has ended (*So that's*). Thereby the viewer *closes the book* on that topic and knows which book has been closed.